

This document gives pertinent information concerning the issuance of the VPDES Permit listed below. This permit is being processed as a minor, municipal permit. The discharge results from the operation of a 0.12 MGD wastewater treatment plant. This facility is located within the Commonwealth of Virginia but discharges to Maryland waters; as such, the effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of both Maryland (COMAR 26.08.02 et seq.) and Virginia (9 VAC 25-260-00 et seq.).

1. Facility Name and Mailing Address: Elysian Heights STP  
P.O. Box 4000  
Ashburn, VA 20146  
SIC Code: 4952 WWTP  
Facility Location: 43254 Heavenly Circle  
Leesburg, VA 20176  
County: Loudoun  
Facility Contact Name: Dale Hammes  
General Manager  
Telephone Number: 571-291-7700
2. Permit No.: VA0092380  
Current Expiration Date: Not Applicable  
Other VPDES Permits: Not Applicable  
Other Permits: MD0067598 (Maryland discharge permit) – expires 30 November 2008  
E2/E3/E4 Status: Not Applicable
3. Owner Name: Loudoun County Sanitation Authority  
Owner Contact/Title: Todd Danielson  
Manager, Community Systems  
Telephone Number: 571-291-7835
4. Application Complete Date: 1 August 2008  
Permit Drafted By: Douglas Frasier  
Date Drafted: 7 October 2008  
Draft Permit Reviewed By: Alison Thompson  
Date Reviewed: 14 October 2008  
Public Comment Period: Start Date: 6 November 2008  
End Date: 8 December 2008
5. Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination  
Receiving Stream Name: Potomac River  
Drainage Area at Outfall: 9,667 square miles  
River Mile: 161.76  
Stream Basin: Potomac River  
Subbasin: Potomac River  
Section: 02 – Middle Potomac River Area  
Stream Class: II  
Special Standards: MDE – Use IP  
Waterbody ID: MDE Basin (02-14-03-01)  
7Q10 Low Flow: 565.7 MGD  
7Q10 High Flow: 60,760.3 MGD  
1Q10 Low Flow: 493.1 MGD  
1Q10 High Flow: 123,550.8 MGD  
Harmonic Mean Flow: Unavailable  
30Q5 Flow: 24,403.2 MGD  
303(d) Listed: No  
30Q10 Flow: 668.0 MGD  
TMDL Approved: No  
Date TMDL Approved: Not Applicable
6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:
 

<input checked="" type="checkbox"/> State Water Control Law <input checked="" type="checkbox"/> Clean Water Act <input checked="" type="checkbox"/> VPDES Permit Regulation <input checked="" type="checkbox"/> EPA NPDES Regulation	<input type="checkbox"/> EPA Guidelines <input checked="" type="checkbox"/> Water Quality Standards (MD and VA) <input type="checkbox"/> Other:
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7. Licensed Operator Requirements: Class III
8. Reliability Class: Class II

**9. Permit Characterization:**

<input type="checkbox"/> Private	<input checked="" type="checkbox"/> Effluent Limited	<input checked="" type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Toxics Monitoring Program Required	<input type="checkbox"/> Interim Limits in Permit
<input checked="" type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL		

**10. Wastewater Sources and Treatment Description:**

The treatment plant serves a planned housing community in northern Loudoun County. Currently there is a population of approximately 336 residents with a planned total of 1,000 residents upon complete build out.

The facility is an extended aeration package plant configured to operate as two trains. Treatment of the waste stream consists of a manual barscreen, extended aeration, clarification, chlorination, dechlorination and post aeration. Facility is designed for 120,000 gallons per day. The facility is currently treating approximately 18,000 gallons per day, on average.

See **Attachment 2** for a facility schematic/diagram.

TABLE 1 OUTFALL DESCRIPTION				
Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic Wastewater	See Item 10 above.	0.12 MGD	39° 14' 50" N 77° 29' 16" W
See <b>Attachment 3</b> for topographic map.				

**11. Sludge Treatment and Disposal Methods:**

Waste activated sludge is pumped from the clarifiers to the aerated sludge holding tanks. The treatment plant has two (2) holding tanks with a combined capacity of 24,000 gallons. As needed, the digested sludge is removed by a licensed septic waste hauler and transported to the Broad Run Water Reclamation Facility (VA0091383) for further treatment and final disposal. Approximately one (1) dry metric ton was generated at this facility last year, per the application package.

**12. Discharges, Intakes, Monitoring Stations and Other Items in Vicinity of Discharge:**

TABLE 2 DISCHARGES, INTAKES & MONITORING STATIONS		
ID / Permit Number	Description	Latitude / Longitude
POT1830	Shepherdstown Monitoring Station – MD DNR	39° 26' 06" / 77° 48' 10"
Station 01638500	USGS Gaging Station – Point of Rocks, MD	39° 16' 25" / 77° 32' 35"
VA0092380	Elysian Heights STP – municipal discharge	39° 14' 50" / 77° 29' 16"
PWSID 6107300	Town of Leesburg Water Treatment Plant – intake	39° 06' 56" / 77° 30' 18"
VA0092282	Town of Leesburg WPCF – municipal discharge	39° 06' 54" / 77° 30' 15"
PWSID 6059501	FCWA – J.J. Corbalis Water Treatment Plant – intake	39° 03' 46" / 77° 20' 36"
VA0024121	The Madeira School WWTP – municipal discharge	38° 58' 26" / 77° 14' 10"
Station 01646500	USGS Gaging Station – Little Falls Pump Station	38° 56' 59" / 77° 07' 40"
POT1184	Little Falls Monitoring Station – MD DNR	38° 56' 53" / 77° 07' 38"

**13. Material Storage:**

TABLE 3 MATERIAL STORAGE		
Materials Description	Volume Stored	Spill / Stormwater Prevention Measures
Sodium hypochlorite (12.5%)	3 – 4 barrels (55 gals. each)	under roof, inside utility building
Sodium bisulfite (38% - 40%)	3 – 4 barrels (55 gals. each)	under roof, inside utility building

**14. Site Inspection:** Performed by NRO staff on 2 October 2008 (see **Attachment 4**).**15. Receiving Stream Water Quality and Water Quality Standards:**a). Ambient Water Quality Data

This facility discharges to the Potomac River which is recognized as State of Maryland waters; as such, there are no DEQ monitoring stations. This segment of the Potomac River, located in Frederick County, Maryland, is not listed as impaired. However, there are downstream impairments due to Total Suspended Solids, Total Phosphorus and Polychlorinated biphenyls (PCBs) in Montgomery County, Maryland. There are no TMDLs developed for this downstream segment.

The proposed limitations should not contribute to the further impairments downstream of the discharge.

b). Receiving Stream Water Quality Criteria

The mainstem of the Potomac River is Maryland waters. Outfall 001 discharges along the shoreline at the Maryland political boundary; thus, the discharge has the potential to affect Maryland waters. Title 26, Subtitle 08 of the Code of Maryland Regulations (Maryland Water Quality Standards) has been reviewed and the proposed limitations contained within should comply with these regulations. A copy of the Maryland Water Quality Standards (COMAR 26.08.02) is included in the permit file.

The receiving stream, per the Maryland Water Quality Criteria, has been designated as Use IP water. The use goals include water contact recreation, protection of nontidal warmwater aquatic life and public water supply. The dissolved oxygen (D.O.) may not be less than 5.0 mg/L at any time and maintain a pH of 6.5 – 8.5 standard units (S.U.).

A copy of the Virginia Water Quality Standards (9 VAC 25-260) is also included in the permit file.

Ammonia:

The Maryland Department of the Environment (MDE) Water Quality Criteria for Ammonia is dependent on instream temperature and pH. Ambient water quality data was available from the Maryland Department of Natural Resources at the Shepherdstown Monitoring Station (POT1830) and the Little Falls Monitoring Station (POT1184); both of which are located approximately 30 miles up and downstream of the discharge point, respectively. Data summaries for temperature, dissolved oxygen and pH are presented in **Attachment 5**. Since both stations presented data that was not statistically different, staff utilized data from the Shepherdstown station to determine the ammonia criteria

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/L calcium carbonate). The average hardness of the receiving stream is 137 mg/L according to samples collected at the USGS monitoring station located at Rock of Points, Maryland (Station Number 1638500), approximately 3.5 miles upstream of the discharge point. Since there was no effluent hardness data available, staff utilized a default value of 50 mg/L CaCO<sub>3</sub>. See **Attachment 6** for the ambient hardness data summaries.

Bacteria Criteria:

The Virginia Water Quality Standards (9 VAC 25-260-170 B.) states sewage discharges shall be disinfected to achieve the following criteria:

*E. coli* bacteria per 100 mL of water shall not exceed the following:

	Geometric Mean <sup>1</sup>	Single Sample Maximum
Freshwater <i>E. coli</i> (N/100 mL)	126	235

<sup>1</sup>For two or more samples taken during any calendar month

The Maryland Water Quality Criteria Specific to Designated Uses (Code of Maryland Regulations 26.08.02.03-3.A) states that sewage discharges shall be disinfected to achieve the following criteria:

*E. coli* and enterococci bacteria per 100 mL of water for all areas shall be as follows:

	Geometric Mean <sup>1</sup>	Single Sample Maximum
Freshwater <i>E. coli</i> (N/100 mL)	126	235
Freshwater enterococci	33	61

<sup>1</sup>For two or more samples taken during any calendar month

c). Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The Potomac River is located within the political boundaries of the State of Maryland. Therefore, the receiving stream has not been designated with a Virginia special standard.

This segment of the Potomac River has been designated as Use IP. The Maryland Water Quality Standards (Code of Maryland Regulations 26.08.02.02.B.) states that waters designated as Use IP must meet Water Contact Recreation, Protection of Aquatic Life and Public Water Supply.

d). Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2 mile radius of the discharge: The Wood Turtle, Upland Sandpiper (song bird), Loggerhead Shrike (song bird), Henslow's Sparrow (song bird), Bald Eagle, Green Floater (mussel) and the Migrant Loggerhead Shrike (song bird).

The limits proposed in this draft permit are protective of both the Maryland and Virginia Water Quality Standards; therefore, protect the threatened and endangered species found near the discharge.

**16. Antidegradation (9 VAC 25-260-30):**

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 2 based on the fact that this segment of the Potomac River has not been listed as impaired and has been designated with Use IP by the State of Maryland. No significant degradation to the existing water quality will be allowed.

In accordance with current DEQ guidance, no significant lowering of water quality is to occur where permit limits are based on the following:

- The dissolved oxygen in the receiving stream is not lowered more than 0.2 mg/L from the existing levels;
- The pH of the receiving stream is maintained within the range 6.0-9.0 S.U.;
- There is compliance with all temperature criteria applicable to the receiving stream;
- No more than 25% of the unused assimilative capacity is allocated for toxic criteria established for the protection of aquatic life; and
- No more than 10% of the unused assimilative capacity is allocated for criteria for the protection of human health.

The antidegradation policy also prohibits the expansion of mixing zones to Tier 2 waters unless the requirements of 9 VAC 25-260-30.A.2. are met. The draft permit is not proposing an expansion of the existing mixing zone.

In accordance with the Maryland Water Quality Standards (COMAR 26.08.02.03-3), the following criteria apply:

- The dissolved oxygen concentration may not be less than 5 mg/L at any time;
- The normal pH values may not be less than 6.5 S.U. or greater than 8.5 S.U.;
- There is compliance with all temperature criteria applicable to the receiving stream;
- Turbidity may not exceed levels detrimental to aquatic life; and
- All toxic substance criteria apply.

#### 17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are then calculated on the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data.

##### a). Effluent Screening

Effluent data obtained from the May 2007 to July 2008 Discharge Monitoring Reports (DMRs) has been reviewed and determined to be suitable for evaluation. Please see **Attachment 7** for a summary of effluent data.

##### b). Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:	WLA	=	Wasteload allocation
	C <sub>o</sub>	=	In-stream water quality criteria
	Q <sub>e</sub>	=	Design flow
	f	=	Decimal fraction of critical flow from mixing evaluation
	Q <sub>s</sub>	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
	C <sub>s</sub>	=	Mean background concentration of parameter in the receiving stream.

The Water Quality Standards contain two distinct mixing zone requirements. The first requirement is general in nature and requires the "use of mixing zone concepts in evaluating permit limits for acute and chronic standards in 9 VAC 25-260-140.B". The second requirement is specific and establishes special restrictions for regulatory mixing zones "established by the Board".

The Department of Environmental Quality uses a simplified mixing model to estimate the amount of mixing of a discharge with the receiving stream within specified acute and chronic exposure periods. The simplified model contains the following assumptions and approximations:

- The effluent enters the stream from the bank, either via a pipe, channel or ditch.
- The effluent velocity isn't significantly greater (no more than 1 - 2 ft/sec greater) than the stream velocity.
- The receiving stream is much wider than its depth (width at least ten times the depth).
- Diffusive mixing in the longitudinal direction (lengthwise) is insignificant compared with advective transport (flow).
- Complete vertical mixing occurs instantaneously at the discharge point. This is assumed since the stream depth is much smaller than the stream width.
- Lateral mixing (across the width) is a linear function of distance downstream.
- The effluent is neutrally buoyant (e.g. the effluent discharge temperature and salinity are not significantly different from the stream's ambient temperature and salinity).
- Complete mix is determined as the point downstream where the variation in concentration is 20% or less across the width and depth of the stream.
- The velocity of passing and drifting organisms is assumed equal to the stream velocity.

If it is suitably demonstrated that a reasonable potential for lethality or chronic impacts within the physical mixing area doesn't exist, then the basic complete mix equation, with 100% of the applicable stream flow, is appropriate. If the mixing analysis determines there is a potential for lethality or chronic impacts within the physical mixing area, then the proportion of stream flow that has mixed with the effluent over the allowed exposure time is used in the basic complete mix equation. As such, the wasteload allocation equation is modified to account for the decimal fraction of critical flow (f).

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a WWTP treating sewage and total residual chlorine may be present since chlorine is used for disinfection. As such, **Attachment 8** details the mixing analysis results and **Attachment 9** presents the WLA derivations for these pollutants.

#### Antidegradation Wasteload Allocations (AWLA s)

Since the receiving stream has been determined to be Tier II water, staff must also determine antidegradation wasteload allocations (AWLAs). The steady state complete mix equation is used substituting the antidegradation baseline ( $C_b$ ) for the in-stream water quality criteria ( $C_o$ ):

$$AWLA = \frac{C_b (Q_e + Q_s) - (C_s) (Q_s)}{Q_e}$$

Where:	AWLA	=	Antidegradation-based wasteload allocation
	$C_b$	=	In-stream antidegradation baseline concentration
	$Q_e$	=	Design flow
	$Q_s$	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
	$C_s$	=	Mean background concentration of parameter in the receiving stream.

Calculated AWLAs for the pollutants noted in 17.b. above are presented in **Attachment 9**.

c). Effluent Limitations, Outfall 001 – Toxic Pollutants

9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9 VAC 25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

## 1) Ammonia as N:

Staff utilized the ambient pH and temperature data for the receiving stream and effluent pH data in order to derive an ammonia limitation. Since there was no effluent temperature data, staff used the default value of 25° C. See **Attachment 10** for the derived ammonia limitations. It was determined that no limits are warranted. However, the current Maryland permit (MD0067598) includes monitoring for this pollutant and it is staff's best professional judgement that the monitoring requirement be carried forward with this issuance.

## 2) Total Residual Chlorine:

Chlorine is used for disinfection and is potentially in the discharge. Staff calculated the WLAs for TRC using current critical flows and the mixing allowance. The calculated Acute and Chronic TRC WLAs were greater than 4.0 mg/L (see **Attachment 9**). In accordance with current DEQ guidance, an upper, technology based, limit is recommended where the chlorine limit, based solely on dilution, would be excessive. Staff substituted a maximum value of 4.0 mg/L for both the Acute and Chronic WLAs and used a default data point of 20 mg/L to derive the following limitations; a monthly average of 2.0 mg/L and a weekly average limit of 2.4 mg/L (see **Attachment 11**).

However, the current Maryland permit (MD0067598) has a limitation of 0.0 mg/L (non-detect) for both the monthly and weekly averages. Due to antibacksliding provisions, it is staff's best professional judgement that the current limit of 0.0 mg/L for both the monthly and weekly averages be carried forward.

## 3) Metals/Organics:

It is staff's best professional judgement, based on the source of the wastewater and derived WLAs, that limits are not warranted for this facility.

d). Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to the Dissolved Oxygen (D.O.) and pH limitations, as governed by the State of Maryland Permit MD0067598, are proposed.

The current BOD<sub>5</sub> and TSS limitations of 30 mg/L monthly and 45 mg/L weekly averages, as governed by the State of Maryland Permit MD0067598, will be carried forward. These limitations reflect the minimum treatment capability of an extended aeration package plant based on general observations and publications.

It is staff's practice to equate the Total Suspended Solids limits with the BOD<sub>5</sub> limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the State of Maryland Water Quality Criteria.

*E. coli* limitations are in accordance with the Virginia Water Quality Standards 9 VAC25-260-170 and are equivalent to the State of Maryland Water Quality Standards COMAR 26.08.02 et seq.

e). Effluent Limitations and Monitoring Summary

The effluent limitations are presented in the following table. Limits were established for BOD<sub>5</sub>, Total Suspended Solids, Ammonia, pH, Dissolved Oxygen, Total Residual Chlorine and *E. coli*.

The limit for Total Suspended Solids is based on Best Professional Judgement.

The mass loading (kg/d), for monthly and weekly averages, was calculated by multiplying the concentration values (mg/L) with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

**18. Antibacksliding:**

All limits in this permit are at least as stringent as those previously established by the Maryland Department of the Environment. Backsliding does not apply to this reissuance.

**19. Effluent Limitations/Monitoring Requirements:**

Design flow is 0.12 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		N/A		N/A	NL	Continuous	TIRE
pH	3	N/A		N/A		6.5 S.U.	8.5 S.U.	1/D	Grab
BOD <sub>5</sub>	3,4	30 mg/L	14 kg/day	45 mg/L	21 kg/day	N/A	N/A	1/W*	8H-C
Total Suspended Solids (TSS)	2	30 mg/L	14 kg/day	45 mg/L	21 kg/day	N/A	N/A	1/W*	8H-C
DO	3,4	N/A		N/A		5.0 mg/L	N/A	1/D	Grab
Ammonia, as N	3,4	NL mg/L		NL mg/L		N/A	N/A	1/W*	8H-C
<i>E. coli</i> (Geometric Mean)	3,4	126 n/100mL		N/A		N/A	N/A	1/W*	Grab
Total Residual Chlorine (after contact tank)	2,5	N/A		N/A		1.5 mg/L	N/A	1/D*	Grab
Total Residual Chlorine (after dechlorination)	3,4	0.0 mg/L		0.0 mg/L		N/A	N/A	1/D	Grab
Total Nitrogen	3,4	NL mg/L		NL mg/L		N/A	N/A	1/M*	8H-C
Total Phosphorus	3,4	NL mg/L		NL mg/L		N/A	N/A	1/M*	8H-C

The basis for the limitations codes are:

- |   |   |                                |
|---|---|--------------------------------|
| 1. Federal Effluent Requirements                              | <i>MGD</i> = Million gallons per day.                         | <i>1/D</i> = Once every day.   |
| 2. Best Professional Judgement                                | <i>N/A</i> = Not applicable.                                  | <i>1/W</i> = Once every week.  |
| 3. Maryland Water Quality Standards (COMAR 26.08.02 et seq.)  | <i>NL</i> = No limit; monitor and report.                     | <i>1/M</i> = Once every month. |
| 4. Virginia Water Quality Standards (9 VAC 25-260-00 et seq.) | <i>S.U.</i> = Standard units.                                 |                                |
| 5. DEQ Disinfection Guidance                                  | <i>TIRE</i> = Totalizing, indicating and recording equipment. |                                |

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

\*See Section 24.

**20. Other Permit Requirements:**

Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.

Minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more than three (3) of the monthly test results for TRC at the exit of the chlorine contact tank shall be < 1.5 mg/L with any TRC < 0.6 mg/L considered a system failure.

9 VAC 25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

**21. Other Special Conditions:**

- a) 95% Capacity Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.B.2. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.
- b) Indirect Dischargers. Required by VPDES Permit Regulation, 9 VAC 25-31-280 B.9 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190.E. Before or on 9 March 2009, the permittee shall submit for approval an Operations and Maintenance (O&M) Manual or a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- e) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9 VAC 25-31-200 D, and Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators. This facility requires a Class III operator.
- f) Reliability Class. The Sewage Collection and Treatment Regulation at 9 VAC 25-790 requires sewerage works achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. The facility is required to meet reliability Class II.
- g) Sludge Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.C.4. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.
- h) Sludge Use and Disposal. The VPDES Permit Regulation at 9 VAC 25-31-100.P., 220.B.2., and 420-720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.
- i) Discharge Monitoring Report Submission. A duplicate signed copy of each Discharge Monitoring Report (DMR) shall be submitted to the Maryland Department of the Environment for review.  
Reports shall be submitted to:  

Compliance Program  
Water Management Administration  
Department of the Environment  
1800 Washington Boulevard  
Montgomery Park Business Center, STE 425  
Baltimore, Maryland 21230-1708
- j) Unauthorized, Unusual or Extraordinary Discharge Notification. Due to the proximity of major, regional drinking water supply intakes downstream of this discharge, the permittee shall notify the Fairfax County Water Authority and the Maryland Department of the Environment within twelve (12) hours of an unauthorized, unusual or extraordinary discharge.

**22. Permit Section Part II:** Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

**23. Changes to the Permit from the Previously Issued Permit:**

a) Special Conditions:

-The Special Conditions listed in Section 21 of this Fact Sheet have been included with this issuance.

b) Monitoring and Effluent Limitations:

-*E. coli* limitations are proposed in keeping with current agency guidance in lieu of fecal coliform.

**24. Variances/Alternate Limits or Conditions:** Given that the influent is only 15% of the plant design flow, it is staff's best professional judgement that the recommended monitoring frequencies may be reduced for the following parameters:

Parameters	Monitoring Frequencies	
	VPDES Permit Manual Recommendation	Proposed Reduction
BOD <sub>5</sub> , TSS, Ammonia and <i>E. coli</i>	three days per week (3D/W)	once per week (1/W)
Total Nitrogen and Total Phosphorus	once every two weeks (1/2W)	once per month (1/M)
Total Residual Chlorine	three times per day (3/D)	once per day (1/D)

A review of DMR data did not indicate any effluent violations and the reduced monitoring frequencies being proposed reflect the current permit requirements under the State of Maryland (MD0067598).

Should the permittee be issued a Warning Letter, a Notice of Violation or be subject to an active enforcement action related to effluent limitation violations, the recommended monitoring frequencies above shall be re-imposed and shall remain in effect for a period of at least six (6) months. If the facility remains in compliance during the above period of at least six (6) months, the permittee may submit a written request re-instating the reduced monitoring frequency.

Should the monthly average flow reach 75% of the design capacity for any three (3) consecutive months, the reduced monitoring frequencies shall cease and those frequencies listed above shall become effective and shall remain in effect until the permit expiration date.

**25. Public Notice Information:**

First Public Notice Date: 5 November 2008

Second Public Notice Date: 12 November 2008

Public Notice Information is required by 9 VAC 25-31-280 B. All pertinent information is on file and may be inspected and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3873, ddfrasier@deq.virginia.gov. See **Attachment 12** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address and telephone number of the writer and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

**26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):**

This segment of the Potomac River is not listed as impaired by the State of Maryland. Downstream impairments do exist for Total Suspended Solids, Total Phosphorus and Polychlorinated biphenyls. The proposed limitations should not contribute to the downstream impairments.

**TMDL Reopener:** This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.

**27. Additional Comments:**

Previous Board Action(s): Not Applicable.

Staff Comments: None.

Public Comment: Comments were received from the Fairfax County Water Authority on 5 December 2008:

- Downstream Notification: The Authority requested that the permit contain a notification requirement by the permittee to immediately contact downstream water suppliers in the event of an unauthorized, unusual or extraordinary discharge. Fairfax Water's drinking water intake can be less than twenty-four (24) hours travel time from the point of this discharge.
- Discharges, Intake, Monitoring Station and Other Items: The Authority suggested that drinking water supply intakes on the Potomac River originating from Maryland should be included in Table 2 of the Fact Sheet. Furthermore, it was requested that DEQ coordinate the Potomac River intakes with the MDE to ensure that Virginia's intakes and discharges are included in all Potomac River permits issued by MDE.

*The full text of the above comments can be located in the permit file.*

EPA Checklist: The checklist can be found in **Attachment 13**.

# MEMORANDUM

## VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

### NORTHERN REGIONAL OFFICE

13901 Crown Court

Woodbridge, VA 22193

TO: VPDES Issuance File VA0092380

DATE: 22 September 2008

FROM: Douglas Frasier

SUBJECT: Flow Frequency Determination of VPDES Permit No. VA0092380  
Elysian Heights Sewage Treatment Plant

The Elysian Heights STP discharges to the Potomac River northeast of Lucketts, Virginia. Stream flow frequencies are required at this site for use in the development of effluent limitations for this VPDES permit.

There is an USGS Gaging Station at Point of Rocks, Maryland (#01638500), upstream from the Outfall 001. The referenced gaging station has a drainage area of 9,651 square miles. The NRO Water Resource Planners ascertained that the drainage area above the Outfall for the Elysian Heights STP is 9,667 square miles.

The flow frequencies shall be determined using values at the USGS Gaging Station at Point of Rocks, Maryland and adjusting them by proportional drainage areas.

#### Potomac River at Point of Rocks, MD (#01638500)

Drainage area	=	9,651 sq. mi.
1Q10	=	761.7 cfs
7Q10	=	873.9 cfs
30Q5	=	37,695.8 cfs
30Q10	=	1,031.9 cfs
High flow 30Q10	=	44,036.6 cfs
High flow 1Q10	=	190,850 cfs
High flow 7Q10	=	93,856.9 cfs

#### Potomac River at Elysian Heights STP at Outfall 001

Drainage area	=	9667 sq. mi.	
1Q10	=	763.0 cfs	493.1 MGD*
7Q10	=	875.3 cfs	565.7 MGD*
30Q5	=	37,758.3 cfs	24,403.2 MGD*
30Q10	=	1,033.6 cfs	668.0 MGD*
High flow 30Q10	=	44,109.6 cfs	28,508.0 MGD*
High flow 1Q10	=	191,166.4 cfs	123,550.8 MGD*
High flow 7Q10	=	94,012.5 cfs	60,760.3 MGD*

\*Conversion to MGD = (cfs flow measurement) x (0.6463)

The high flow months are December - May



## StreamStats Data-Collection Station Report

**USGS Station Number** 01638500  
**Station Name** POTOMAC RIVER AT POINT OF ROCKS, MD

[Click here to link to available data on NWIS-Web for this site.](#)

### Descriptive Information

Station Type	Gaging Station, continuous record		
Regulated?	Undefined		
Period of Record			
Remarks			
Latitude (degrees NAD83)	39.27358333	39° 16' 24.9"	
Longitude (degrees NAD83)	-77.54311111	77° 32' 35.2"	
Hydrologic unit code	02070008		
Local Basin	-		
County	021-Frederick		
MCD	-		
Directions to station			

### Physical Characteristics

Characteristic Name	Value	Units	Citation Number
24_Hour_2_Year_Precipitation	3.0500	inches	31
Contributing_Drainage_Area	9651.00	square miles	31
<b>Drainage_Area</b>	<b>9651.00</b>	<b>square miles</b>	31
Main_Channel_Length	270.900	miles	31
Mean_Annual_Precipitation	39.500	inches	31
Mean_Annual_Snowfall	30.600	inches	31
Mean_Basin_Elevation	1356.00	feet	31
Mean_Min_January_Temperature	23.000	degrees F	31
Mean_Max_July_Temperature	86.000	degrees F	31
Percent_Forest	59.000	percent	31
Percent_Storage	0.0440	percent	31
Soil_Infiltration	3.5600	inches	31

Stream\_Slope\_10\_and\_85\_Method

5.5600

feet per mi

31

## Streamflow Statistics

Statistic Name	Value	Units	Citation Number
<b>Peak-Flow Statistics</b>			
10_Year_Peak_Flood	221000	cubic feet per second	31
100_Year_Peak_Flood	439000	cubic feet per second	31
2_Year_Peak_Flood	104000	cubic feet per second	31
200_Year_Peak_Flood	523000	cubic feet per second	31
25_Year_Peak_Flood	298000	cubic feet per second	31
5_Year_Peak_Flood	168000	cubic feet per second	31
50_Year_Peak_Flood	364000	cubic feet per second	31
500_Year_Peak_Flood	650000	cubic feet per second	31
Log_Mean_of_Annual_Peaks	5.0240	Log base 10	31
Log_Skew_of_Annual_Peaks	0.1870	Log base 10	31
Log_STD_of_Annual_Peaks	0.2320	Log base 10	31
Mean_Annual_Flood	67000.0	cubic feet per second	31
Peak_years_with_historic_adjustment	102.000	years	31
Systematic_peak_years	96.000	years	31
WRC_Mean	5.0300	Log base 10	31
WRC_Skew	0.3260	Log base 10	31
WRC_STD	0.2390	Log base 10	31
<b>Flood-Volume Statistics</b>			
1_Day_10_Year_Maximum	190850	cubic feet per second	31
1_Day_100_Year_Maximum	352997	cubic feet per second	31
1_Day_2_Year_Maximum	94081.6	cubic feet per second	31
1_Day_20_Year_Maximum	235422	cubic feet per second	31
1_Day_25_Year_Maximum	250464	cubic feet per second	31
1_Day_5_Year_Maximum	148843	cubic feet per second	31
1_Day_50_Year_Maximum	299658	cubic feet per second	31
15_Day_10_Year_Maximum	63719.6	cubic feet per second	31
15_Day_100_Year_Maximum	95436.6	cubic feet per second	31
15_Day_2_Year_Maximum	37245.0	cubic feet per second	31
15_Day_20_Year_Maximum	73578.4	cubic feet per second	31
15_Day_25_Year_Maximum	76675.2	cubic feet per second	31
15_Day_5_Year_Maximum	53270.5	cubic feet per second	31
15_Day_50_Year_Maximum	86136.7	cubic feet per second	31
3_Day_10_Year_Maximum	146427	cubic feet per second	31
3_Day_100_Year_Maximum	266581	cubic feet per second	31
3_Day_2_Year_Maximum	73796.2	cubic feet per second	31

3_Day_20_Year_Maximum	179592	cubic feet per second	31
3_Day_25_Year_Maximum	190756	cubic feet per second	31
3_Day_5_Year_Maximum	115030	cubic feet per second	31
3_Day_50_Year_Maximum	227191	cubic feet per second	31
30_Day_10_Year_Maximum	44036.6	cubic feet per second	31
30_Day_100_Year_Maximum	62196.9	cubic feet per second	31
30_Day_2_Year_Maximum	27521.8	cubic feet per second	31
30_Day_20_Year_Maximum	49842.3	cubic feet per second	31
30_Day_25_Year_Maximum	51634.0	cubic feet per second	31
30_Day_5_Year_Maximum	37695.8	cubic feet per second	31
30_Day_50_Year_Maximum	57020.9	cubic feet per second	31
7_Day_10_Year_Maximum	93856.9	cubic feet per second	31
7_Day_100_Year_Maximum	157044	cubic feet per second	31
7_Day_2_Year_Maximum	50908.8	cubic feet per second	31
7_Day_20_Year_Maximum	112070	cubic feet per second	31
7_Day_25_Year_Maximum	118051	cubic feet per second	31
7_Day_5_Year_Maximum	75894.4	cubic feet per second	31
7_Day_50_Year_Maximum	137115	cubic feet per second	31
<b>Low-Flow Statistics</b>			
1_Day_10_Year_Low_Flow	761.701	cubic feet per second	31
1_Day_2_Year_Low_Flow	1219.17	cubic feet per second	31
1_Day_20_Year_Low_Flow	667.283	cubic feet per second	31
14_Day_10_Year_Low_Flow	926.700	cubic feet per second	31
14_Day_2_Year_Low_Flow	1448.44	cubic feet per second	31
14_Day_20_Year_Low_Flow	820.979	cubic feet per second	31
3_Day_10_Year_Low_Flow	818.904	cubic feet per second	31
3_Day_2_Year_Low_Flow	1283.69	cubic feet per second	31
3_Day_20_Year_Low_Flow	722.090	cubic feet per second	31
30_Day_10_Year_Low_Flow	1031.87	cubic feet per second	31
30_Day_2_Year_Low_Flow	1610.98	cubic feet per second	31
30_Day_20_Year_Low_Flow	918.358	cubic feet per second	31
7_Day_10_Year_Low_Flow	873.889	cubic feet per second	31
7_Day_2_Year_Low_Flow	1360.40	cubic feet per second	31
7_Day_20_Year_Low_Flow	772.119	cubic feet per second	31
7_Day_5_Year_Low_Flow	1016.23	cubic feet per second	31
90_Day_10_Year_Low_Flow	1313.75	cubic feet per second	31
90_Day_2_Year_Low_Flow	2327.50	cubic feet per second	31
90_Day_20_Year_Low_Flow	1129.89	cubic feet per second	31
Low_flow_years	84.000	years	31
<b>Flow-Duration Statistics</b>			
1_Percent_Duration	65162	cubic feet per second	41
10_Percent_Duration	20900	cubic feet per second	41
20_Percent_Duration	13100	cubic feet per second	41
25_Percent_Duration	11000	cubic feet per second	41

30_Percent_Duration	9290	cubic feet per second	41
40_Percent_Duration	7050	cubic feet per second	41
5_Percent_Duration	30600	cubic feet per second	41
50_Percent_Duration	5380	cubic feet per second	41
60_Percent_Duration	4080	cubic feet per second	41
70_Percent_Duration	3080	cubic feet per second	41
75_Percent_Duration	2660	cubic feet per second	41
80_Percent_Duration	2290	cubic feet per second	41
90_Percent_Duration	1680	cubic feet per second	41
95_Percent_Duration	1340	cubic feet per second	41
99_Percent_Duration	940	cubic feet per second	41

**Annual Flow Statistics**

Daily_flow_years	89.000	years	31
Mean_Annual_Flow	9422.00	cubic feet per second	31
Stand_Dev_of_Mean_Annual_Flow	2880.00	cubic feet per second	31

**Monthly Flow Statistics**

April_Mean_Flow	16560.0	cubic feet per second	31
April_STD	8658.00	cubic feet per second	31
August_Mean_Flow	4301.00	cubic feet per second	31
August_STD	3806.00	cubic feet per second	31
December_Mean_Flow	8352.00	cubic feet per second	31
December_STD	6309.00	cubic feet per second	31
February_Mean_Flow	14450.0	cubic feet per second	31
February_STD	8005.00	cubic feet per second	31
January_Mean_Flow	11160.0	cubic feet per second	31
January_STD	6639.00	cubic feet per second	31
July_Mean_Flow	4531.00	cubic feet per second	31
July_STD	2806.00	cubic feet per second	31
June_Mean_Flow	8190.00	cubic feet per second	31
June_STD	5988.00	cubic feet per second	31
March_Mean_Flow	19640.0	cubic feet per second	31
March_STD	10380.0	cubic feet per second	31
May_Mean_Flow	12150.0	cubic feet per second	31
May_STD	7066.00	cubic feet per second	31
November_Mean_Flow	5201.00	cubic feet per second	31
November_STD	4136.00	cubic feet per second	31
October_Mean_Flow	5163.00	cubic feet per second	31
October_STD	6391.00	cubic feet per second	31
September_Mean_Flow	3520.00	cubic feet per second	31
September_STD	3282.00	cubic feet per second	31

**General Flow Statistics**

Average_daily_streamflow	9510.902	cubic feet per second	41
Maximum_daily_flow	434000	cubic feet per second	41
Minimum_daily_flow	540	cubic feet per second	41

Std_Dev_of_daily_flows	13729.221	cubic feet per second	41
<b>Base_Flow_Statistics</b>			
Average_BFI_value	0.519	dimensionless	42
Number_of_years_to_compute_BFI	108	years	42
Std_dev_of_annual_BFI_values	0.068	dimensionless	42

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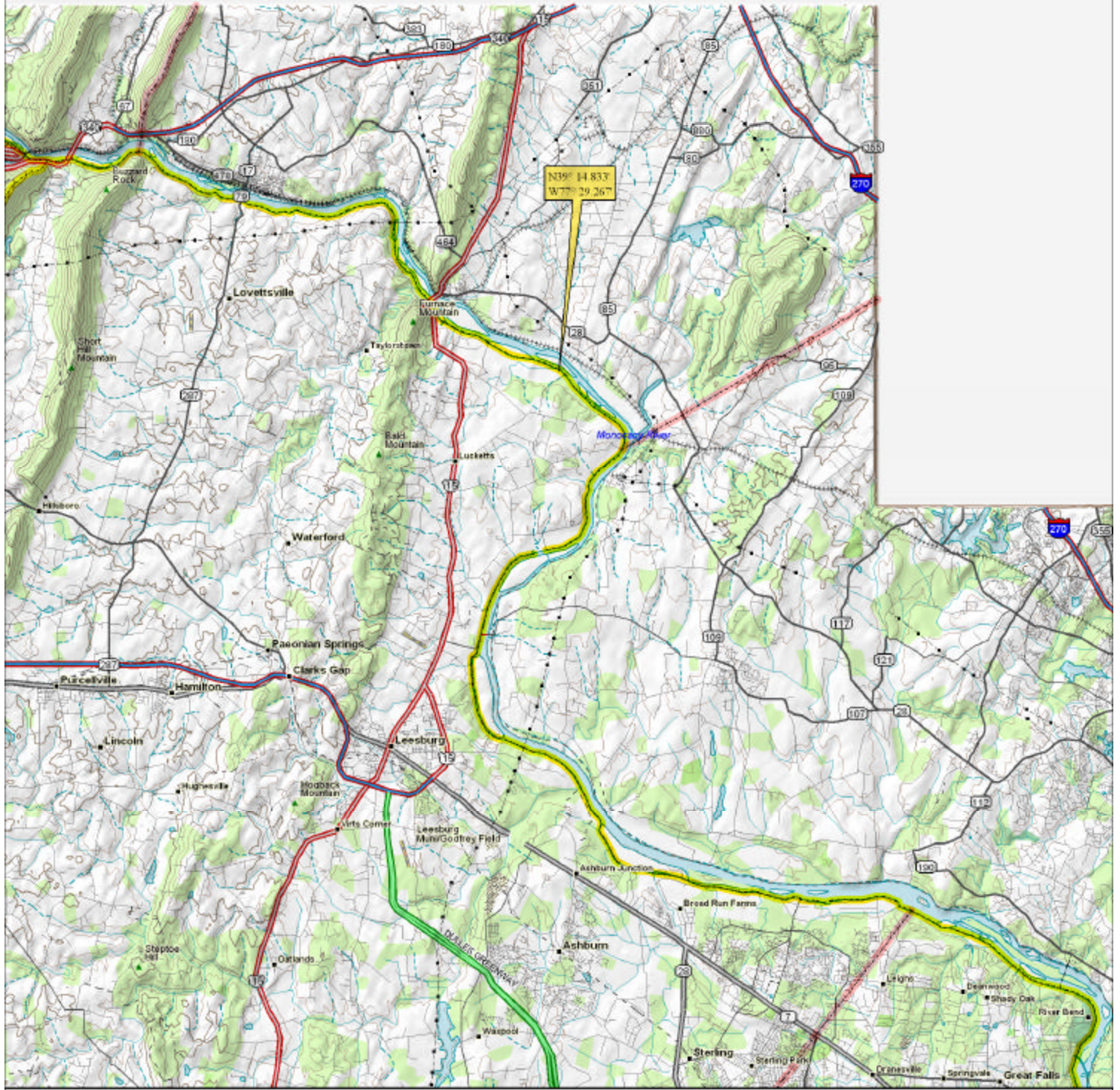
## Citations

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Citation Number	Citation Name
31	Imported from Basin Characteristics file
41	Wolock, D.M., 2003, Flow characteristics at U.S. Geological Survey streamgages in the conterminous United States: U.S. Geological Survey Open-File Report 03-146, digital data set, available on World Wide Web at URL <a href="http://water.usgs.gov/lookup/getspatial?qsitesdd">http://water.usgs.gov/lookup/getspatial?qsitesdd</a>
42	Wolock, D.M., 2003, Base-flow index grid for the conterminous United States: U.S. Geological Survey Open-File Report 03-263, digital data set, available on World Wide Web at URL <a href="http://water.usgs.gov/lookup/getspatial?bfi48grd">http://water.usgs.gov/lookup/getspatial?bfi48grd</a>

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## MEMORANDUM

**TO:** Permit File

**FROM:** Douglas Frasier

**DATE:** 2 October 2008

**SUBJECT:** Site Inspection – Elysian Heights STP – VA0092380

A site visit was conducted at the Elysian Heights STP on 2 October 2008 as part of the permit issuance. This facility was one of a handful of facilities once permitted by the Maryland Department of the Environment and are now being transferred to Virginia. Loudoun Water personnel provided a brief tour of the facility. The facility is located northeast of Lucketts in Loudoun County. It is a planned housing development that currently has a population of approximately 336 with a planned total of 1,000 residents at the completion of construction. Due to a downturn in the housing market, construction has all but ceased and the plant is only receiving about 18,000 gallons per day.

Sewage influent flows via gravity from the collection system of the housing community to the influent wet well of the sewage treatment plant. From the wet well, flow is pumped to primary treatment which consists of solids removal through a manual barscreen.

Sewage from the headworks enters into an extended aeration basin. The package plant can operate in two trains with a capacity of 60,000 gallons each, only one side is in use at this time. After aeration, flow enters into the clarifier. Chlorination is accomplished via a liquid solution of 12.5% sodium hypochlorite which is metered into the chlorination tank. Flow then enters a rectangular chlorine contact tank. Dechlorination is done via a liquid solution of 38% - 40% sodium bisulfite. After dechlorination, flow goes through post aeration prior to being pumped to the Potomac River.

The return activated sludge (RAS) is pumped from the clarifier to the extended aeration basin. Waste activated sludge (WAS) is pumped to the digester (holding tank). Sludge is then pumped and hauled to the Broad Run Water Reclamation Facility (VA0091383) as needed for further treatment and disposal.

The final effluent enters a side stream of the Potomac during low flows. The main flow of the River was approximately 300 feet across and the flow was swift. The discharge pipe was buried underneath debris and silt. The River bottom was rocky. No indication of any impacts from the discharge. The water was clear and no algae were present.

Elysian Heights STP  
VA0092380  
Site Visit  
2 October 2008



1. One side of plant



2. Influent



3. Clarifier



4. Chlorine contact tank



5. Post aeration/effluent pumps



6. Potomac River

Elysian Heights Sewage Treatment Plant  
VA0092380

Monthly Ambient Monitoring Data  
Station POT1830 (Sheperdstown)  
January 2007 - August 2008

Date	Temperature		Dissolved Oxygen	pH	
	°F	°C	mg/L	S.U.	
January	41.9	5.5	12.7	7.9	5.5
February	33.6	0.9	13.9	7.9	0.9
March	37.2	2.9	13.0	7.7	2.9
April	56.8	13.8	9.9	7.8	
May	64.2	17.9	8.7	7.8	
June	78.4	25.8	7.1	8.0	
July	82.0	27.8	8.9	7.9	
August	81.3	27.4	8.8	8.4	
September	77.4	25.2	7.6	8.2	
October	74.7	23.7	9.2	8.3	
November	57.2	14.0	9.0	7.5	14
December					
January	44.1	6.7	13.0	7.7	6.7
February	40.9	4.9	12.5	7.7	4.9
March	43.5	6.4	12.0	7.6	6.4
April	54.0	12.2	10.7	7.9	
May	63.9	17.7	8.9	7.8	
June	70.2	21.2	7.9	7.7	
July	78.1	25.6	7.4	7.6	
August	79.9	26.6	6.5	7.9	

MEAN VALUES:	16.1	7.9
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90th PERCENTILE:	26.8	8.2
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90TH PERCENTILE TEMP. (Nov. - March):	9.6
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Elysian Heights Sewage Treatment Plant  
VA0092380

Monthly Ambient Monitoring Data  
Station POT1184 (Little Falls)  
January 2007 - August 2008

Date	Temperature		Dissolved Oxygen	pH	
	°F	°C	mg/L	S.U.	
January	45.3	7.4	12.2	7.9	7.4
February	32.9	0.5	13.2	7.9	0.5
March	37.4	3.0	14.6	7.7	3.0
April	57.7	14.3	9.5	8.1	
May	69.8	21.0	8.1	8.0	
June	81.7	27.6	7.2	8.2	
July	83.1	28.4	6.8	8.1	
August	81.7	27.6	7.3	8.6	
September	77.5	25.3	7.1	8.1	
October	76.1	24.5	8.2	8.3	
November	57.6	14.2	8.9	8.2	14.2
December	38.7	3.7	12.4	8.1	3.7
January	47.7	8.7	11.8	8.0	8.7
February	50.0	10.0	12.3	7.3	10.0
March	45.3	7.4		7.1	7.4
April	53.1	11.7	10.3	7.9	
May	66.4	19.1	8.2	7.5	
June	74.3	23.5	7.1	8.1	
July	77.0	25.0	7.1	8.1	
August	81.5	27.5	6.4	8.3	

MEAN VALUES:	16.5	8.0
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90th PERCENTILE:	27.6	8.3
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90th PERCENTILE TEMP. (Nov. - March):	11.3
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Elysian Heights Sewage Treatment Plant  
VA0092380

USGS Monitoring Data

Date	Station Number	
	1638500	1646500
	Hardness as Calcium carbonate CaCO3 (mg/L)	
19-Apr-1982	110.0	
9-Feb-1982		88.0
20-Nov-1981	150.0	
18-Sep-1981	150.0	
30-Jun-1981	110.0	
28-Jan-1981	180.0	
24-Nov-1980	170.0	
19-Aug-1980	170.0	
22-Jul-1980	130.0	
6-Jun-1980	120.0	
1-May-1980	84.0	
19-Aug-1965		130.0
9-Aug-1965		120.0

MEAN VALUES:	137.4	112.7
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Elysian Heights Sewage Treatment Plant  
VA0092380

Monthly Effluent Monitoring Data  
May 2007 - July 2008

Date	Monthly Average (mg/L)		Maximum pH
Monitoring Month	BOD	TSS	S.U.
May-07	8.2	3.2	7.7
June-07	9.9	2.6	7.9
July-07	11.6	4.4	8.1
August-07	12.8	8.7	7.7
September-07	10.4	11.4	8.1
October-07	10.7	10.1	7.4
November-07	7.2	10.5	7.3
December-07	5.7	7.0	7.6
January-08	3.8	4.8	7.8
February-08	0.0	4.8	7.5
March-08	1.3	9.8	7.9
April-08	4.0	8.0	8.0
May-08	4.6	10.2	7.8
June-08	10.0	10.8	7.7
July-08	6.7	7.9	7.7

MEAN VALUES:	7.1	7.6	7.7
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90th PERCENTILE:			8.1
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## Mixing Zone Predictions for

## Elysian Heights

Effluent Flow = 0.12 MGD  
Stream 7Q10 = 566 MGD  
Stream 30Q10 = 668 MGD  
Stream 1Q10 = 493 MGD  
Stream slope = 0.00265 ft/ft  
Stream width = 213 ft  
Bottom scale = 3  
Channel scale = 1

---

### Mixing Zone Predictions @ 7Q10

Depth = 2.9323 ft  
Length = 17358.69 ft  
Velocity = 1.403 ft/sec  
Residence Time = .1432 days

#### Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

---

### Mixing Zone Predictions @ 30Q10

Depth = 3.2427 ft  
Length = 15931.23 ft  
Velocity = 1.4974 ft/sec  
Residence Time = .1231 days

#### Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

---

### Mixing Zone Predictions @ 1Q10

Depth = 2.6971 ft  
Length = 18636.57 ft  
Velocity = 1.3287 ft/sec  
Residence Time = 3.896 hours

#### Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 25.67% of the 1Q10 is used.

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# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Elysian Heights STP

Permit No.: VA0092380

Receiving Stream: Potomac River

Version: OWP Guidance Memo 00-2011 (8/24/00)

## Stream Information

Mean Hardness (as CaCO3) =	137.4 mg/L
90% Temperature (Annual) =	27 deg C
90% Temperature (Wet season) =	9.6 deg C
90% Maximum pH =	8 SU
10% Maximum pH =	SU
Tier Designation (1 or 2) =	2
Public Water Supply (PWS) Y/N? =	y
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

## Stream Flows

1Q10 (Annual) =	493 MGD
7Q10 (Annual) =	566 MGD
30Q10 (Annual) =	668 MGD
1Q10 (Wet season) =	123551 MGD
30Q10 (Wet season) =	28508 MGD
30Q5 =	24403 MGD
Harmonic Mean =	MGD
Annual Average =	NA MGD

## Mixing Information

Annual - 1Q10 Mix =	25.7 %
- 7Q10 Mix =	100 %
- 30Q10 Mix =	100 %
Wet Season - 1Q10 Mix =	100 %
- 30Q10 Mix =	100 %

## Effluent Information

Mean Hardness (as CaCO3) =	50 mg/L
90% Temp (Annual) =	25 deg C
90% Temp (Wet season) =	deg C
90% Maximum pH =	8.1 SU
10% Maximum pH =	SU
Discharge Flow =	0.12 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	1.2E+03	2.7E+03	--	--	2.4E+08	5.5E+08	--	--	1.2E+02	2.7E+02	--	--	2.4E+07	5.5E+07	--	--	2.4E+07	5.5E+07
Acrolein	0	--	--	3.2E+02	7.8E+02	--	--	6.5E+07	1.6E+08	--	--	3.2E+01	7.8E+01	--	--	6.5E+06	1.6E+07	--	--	6.5E+06	1.6E+07
Acrylonitrile <sup>C</sup>	0	--	--	5.9E-01	6.6E+00	--	--	5.9E-01	6.6E+00	--	--	5.9E-02	6.6E-01	--	--	5.9E-02	6.6E-01	--	--	5.9E-02	6.6E-01
Aldrin <sup>C</sup>	0	3.0E+00	--	1.3E-03	1.4E-03	3.2E+03	--	1.3E-03	1.4E-03	7.5E-01	--	1.3E-04	1.4E-04	3.1E+03	--	1.3E-04	1.4E-04	3.1E+03	--	1.3E-04	1.4E-04
Ammonia-N (mg/l) (Yearly)	0	8.41E+00	1.09E+00	--	--	8.9E+03	6.1E+03	--	--	2.10E+00	2.72E-01	--	--	8.6E+03	1.5E+03	--	--	8.6E+03	1.5E+03	--	--
Ammonia-N (mg/l) (High Flow)	0	8.41E+00	2.43E+00	--	--	8.7E+06	5.8E+05	--	--	2.10E+00	6.08E-01	--	--	2.2E+06	1.4E+05	--	--	2.2E+06	1.4E+05	--	--
Anthracene	0	--	--	9.6E+03	1.1E+05	--	--	2.0E+09	2.2E+10	--	--	9.6E+02	1.1E+04	--	--	2.0E+08	2.2E+09	--	--	2.0E+08	2.2E+09
Antimony	0	--	--	1.4E+01	4.3E+03	--	--	2.8E+06	8.7E+08	--	--	1.4E+00	4.3E+02	--	--	2.8E+05	8.7E+07	--	--	2.8E+05	8.7E+07
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	3.6E+05	7.1E+05	2.0E+06	--	8.5E+01	3.8E+01	1.0E+00	--	3.5E+05	1.8E+05	2.0E+05	--	3.5E+05	1.8E+05	2.0E+05	--
Barium	0	--	--	2.0E+03	--	--	--	4.1E+08	--	--	--	2.0E+02	--	--	--	4.1E+07	--	--	--	4.1E+07	--
Benzene <sup>C</sup>	0	--	--	1.2E+01	7.1E+02	--	--	1.2E+01	7.1E+02	--	--	1.2E+00	7.1E+01	--	--	1.2E+00	7.1E+01	--	--	1.2E+00	7.1E+01
Benzidine <sup>C</sup>	0	--	--	1.2E-03	5.4E-03	--	--	1.2E-03	5.4E-03	--	--	1.2E-04	5.4E-04	--	--	1.2E-04	5.4E-04	--	--	1.2E-04	5.4E-04
Benzo (a) anthracene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02
Benzo (b) fluoranthene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02
Benzo (k) fluoranthene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02
Benzo (a) pyrene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02
Bis2-Chloroethyl Ether	0	--	--	3.1E-01	1.4E+01	--	--	6.3E+04	2.8E+06	--	--	3.1E-02	1.4E+00	--	--	6.3E+03	2.8E+05	--	--	6.3E+03	2.8E+05
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	1.7E+05	--	--	2.8E+08	3.5E+10	--	--	1.4E+02	1.7E+04	--	--	2.8E+07	3.5E+09	--	--	2.8E+07	3.5E+09
Bromoform <sup>C</sup>	0	--	--	4.4E+01	3.6E+03	--	--	4.4E+01	3.6E+03	--	--	4.4E+00	3.6E+02	--	--	4.4E+00	3.6E+02	--	--	4.4E+00	3.6E+02
Butylbenzylphthalate	0	--	--	3.0E+03	5.2E+03	--	--	6.1E+08	1.1E+09	--	--	3.0E+02	5.2E+02	--	--	6.1E+07	1.1E+08	--	--	6.1E+07	1.1E+08
Cadmium	0	5.6E+00	1.5E+00	5.0E+00	--	5.9E+03	6.9E+03	1.0E+06	--	1.4E+00	3.6E-01	5.0E-01	--	5.8E+03	1.7E+03	1.0E+05	--	5.8E+03	1.7E+03	1.0E+05	--
Carbon Tetrachloride <sup>C</sup>	0	--	--	2.5E+00	4.4E+01	--	--	2.5E+00	4.4E+01	--	--	2.5E-01	4.4E+00	--	--	2.5E-01	4.4E+00	--	--	2.5E-01	4.4E+00
Chlordane <sup>C</sup>	0	2.4E+00	4.3E-03	2.1E-02	2.2E-02	2.5E+03	2.0E+01	2.1E-02	2.2E-02	6.0E-01	1.1E-03	2.1E-03	2.2E-03	2.5E+03	5.1E+00	2.1E-03	2.2E-03	2.5E+03	5.1E+00	2.1E-03	2.2E-03
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	9.1E+08	1.1E+09	5.1E+10	--	2.2E+05	5.8E+04	2.5E+04	--	8.8E+08	2.7E+08	5.1E+09	--	8.8E+08	2.7E+08	5.1E+09	--
TRC	0	1.9E+01	1.1E+01	--	--	2.0E+04	5.2E+04	--	--	4.8E+00	2.8E+00	--	--	2.0E+04	1.3E+04	--	--	2.0E+04	1.3E+04	--	--
Chlorobenzene	0	--	--	6.8E+02	2.1E+04	--	--	1.4E+08	4.3E+09	--	--	6.8E+01	2.1E+03	--	--	1.4E+07	4.3E+08	--	--	1.4E+07	4.3E+08

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane <sup>C</sup>	0	--	--	4.1E+00	3.4E+02	--	--	4.1E+00	3.4E+02	--	--	4.1E-01	3.4E+01	--	--	4.1E-01	3.4E+01	--	--	4.1E-01	3.4E+01
Chloroform <sup>C</sup>	0	--	--	3.5E+02	2.9E+04	--	--	3.5E+02	2.9E+04	--	--	3.5E+01	2.9E+03	--	--	3.5E+01	2.9E+03	--	--	3.5E+01	2.9E+03
2-Chloronaphthalene	0	--	--	1.7E+03	4.3E+03	--	--	3.5E+08	8.7E+08	--	--	1.7E+02	4.3E+02	--	--	3.5E+07	8.7E+07	--	--	3.5E+07	8.7E+07
2-Chlorophenol	0	--	--	1.2E+02	4.0E+02	--	--	2.4E+07	8.1E+07	--	--	1.2E+01	4.0E+01	--	--	2.4E+06	8.1E+06	--	--	2.4E+06	8.1E+06
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	8.8E+01	1.9E+02	--	--	2.1E-02	1.0E-02	--	--	8.5E+01	4.8E+01	--	--	8.5E+01	4.8E+01	--	--
Chromium III	0	7.4E+02	9.6E+01	--	--	7.8E+05	4.5E+05	--	--	1.8E+02	2.4E+01	--	--	7.6E+05	1.1E+05	--	--	7.6E+05	1.1E+05	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.7E+04	5.2E+04	--	--	4.0E+00	2.8E+00	--	--	1.6E+04	1.3E+04	--	--	1.6E+04	1.3E+04	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	2.0E+07	--	--	--	1.0E+01	--	--	--	2.0E+06	--	--	--	2.0E+06	--
Chrysene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02
Copper	0	1.8E+01	1.2E+01	1.3E+03	--	1.9E+04	5.5E+04	2.6E+08	--	4.5E+00	2.9E+00	1.3E+02	--	1.9E+04	1.4E+04	2.6E+07	--	1.9E+04	1.4E+04	2.6E+07	--
Cyanide	0	2.2E+01	5.2E+00	7.0E+02	2.2E+05	2.3E+04	2.5E+04	1.4E+08	4.4E+10	5.5E+00	1.3E+00	7.0E+01	2.2E+04	2.3E+04	6.1E+03	1.4E+07	4.4E+09	2.3E+04	6.1E+03	1.4E+07	4.4E+09
DDD <sup>C</sup>	0	--	--	8.3E-03	8.4E-03	--	--	8.3E-03	8.4E-03	--	--	8.3E-04	8.4E-04	--	--	8.3E-04	8.4E-04	--	--	8.3E-04	8.4E-04
DDE <sup>C</sup>	0	--	--	5.9E-03	5.9E-03	--	--	5.9E-03	5.9E-03	--	--	5.9E-04	5.9E-04	--	--	5.9E-04	5.9E-04	--	--	5.9E-04	5.9E-04
DDT <sup>C</sup>	0	1.1E+00	1.0E-03	5.9E-03	5.9E-03	1.2E+03	4.7E+00	5.9E-03	5.9E-03	2.8E-01	2.5E-04	5.9E-04	5.9E-04	1.1E+03	1.2E+00	5.9E-04	5.9E-04	1.1E+03	1.2E+00	5.9E-04	5.9E-04
Demeton	0	--	1.0E-01	--	--	--	4.7E+02	--	--	--	2.5E-02	--	--	--	1.2E+02	--	--	--	1.2E+02	--	--
Dibenz(a,h)anthracene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02
Dibutyl phthalate	0	--	--	2.7E+03	1.2E+04	--	--	5.5E+08	2.4E+09	--	--	2.7E+02	1.2E+03	--	--	5.5E+07	2.4E+08	--	--	5.5E+07	2.4E+08
Dichloromethane (Methylene Chloride) <sup>C</sup>	0	--	--	4.7E+01	1.6E+04	--	--	4.7E+01	1.6E+04	--	--	4.7E+00	1.6E+03	--	--	4.7E+00	1.6E+03	--	--	4.7E+00	1.6E+03
1,2-Dichlorobenzene	0	--	--	2.7E+03	1.7E+04	--	--	5.5E+08	3.5E+09	--	--	2.7E+02	1.7E+03	--	--	5.5E+07	3.5E+08	--	--	5.5E+07	3.5E+08
1,3-Dichlorobenzene	0	--	--	4.0E+02	2.6E+03	--	--	8.1E+07	5.3E+08	--	--	4.0E+01	2.6E+02	--	--	8.1E+06	5.3E+07	--	--	8.1E+06	5.3E+07
1,4-Dichlorobenzene	0	--	--	4.0E+02	2.6E+03	--	--	8.1E+07	5.3E+08	--	--	4.0E+01	2.6E+02	--	--	8.1E+06	5.3E+07	--	--	8.1E+06	5.3E+07
3,3-Dichlorobenzidine <sup>C</sup>	0	--	--	4.0E-01	7.7E-01	--	--	4.0E-01	7.7E-01	--	--	4.0E-02	7.7E-02	--	--	4.0E-02	7.7E-02	--	--	4.0E-02	7.7E-02
Dichlorobromomethane <sup>C</sup>	0	--	--	5.6E+00	4.6E+02	--	--	5.6E+00	4.6E+02	--	--	5.6E-01	4.6E+01	--	--	5.6E-01	4.6E+01	--	--	5.6E-01	4.6E+01
1,2-Dichloroethane <sup>C</sup>	0	--	--	3.8E+00	9.9E+02	--	--	3.8E+00	9.9E+02	--	--	3.8E-01	9.9E+01	--	--	3.8E-01	9.9E+01	--	--	3.8E-01	9.9E+01
1,1-Dichloroethylene	0	--	--	3.1E+02	1.7E+04	--	--	6.3E+07	3.5E+09	--	--	3.1E+01	1.7E+03	--	--	6.3E+06	3.5E+08	--	--	6.3E+06	3.5E+08
1,2-trans-dichloroethylene	0	--	--	7.0E+02	1.4E+05	--	--	1.4E+08	2.8E+10	--	--	7.0E+01	1.4E+04	--	--	1.4E+07	2.8E+09	--	--	1.4E+07	2.8E+09
2,4-Dichlorophenol	0	--	--	9.3E+01	7.9E+02	--	--	1.9E+07	1.6E+08	--	--	9.3E+00	7.9E+01	--	--	1.9E+06	1.6E+07	--	--	1.9E+06	1.6E+07
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	2.0E+07	--	--	--	1.0E+01	--	--	--	2.0E+06	--	--	--	2.0E+06	--
1,2-Dichloropropane <sup>C</sup>	0	--	--	5.2E+00	3.9E+02	--	--	5.2E+00	3.9E+02	--	--	5.2E-01	3.9E+01	--	--	5.2E-01	3.9E+01	--	--	5.2E-01	3.9E+01
1,3-Dichloropropene	0	--	--	1.0E+01	1.7E+03	--	--	2.0E+06	3.5E+08	--	--	1.0E+00	1.7E+02	--	--	2.0E+05	3.5E+07	--	--	2.0E+05	3.5E+07
Dieldrin <sup>C</sup>	0	2.4E-01	5.6E-02	1.4E-03	1.4E-03	2.5E+02	2.6E+02	1.4E-03	1.4E-03	6.0E-02	1.4E-02	1.4E-04	1.4E-04	2.5E+02	6.6E+01	1.4E-04	1.4E-04	2.5E+02	6.6E+01	1.4E-04	1.4E-04
Diethyl Phthalate	0	--	--	2.3E+04	1.2E+05	--	--	4.7E+09	2.4E+10	--	--	2.3E+03	1.2E+04	--	--	4.7E+08	2.4E+09	--	--	4.7E+08	2.4E+09
Di-2-Ethylhexyl Phthalate <sup>C</sup>	0	--	--	1.8E+01	5.9E+01	--	--	1.8E+01	5.9E+01	--	--	1.8E+00	5.9E+00	--	--	1.8E+00	5.9E+00	--	--	1.8E+00	5.9E+00
2,4-Dimethylphenol	0	--	--	5.4E+02	2.3E+03	--	--	1.1E+08	4.7E+08	--	--	5.4E+01	2.3E+02	--	--	1.1E+07	4.7E+07	--	--	1.1E+07	4.7E+07
Dimethyl Phthalate	0	--	--	3.1E+05	2.9E+06	--	--	6.4E+10	5.9E+11	--	--	3.1E+04	2.9E+05	--	--	6.4E+09	5.9E+10	--	--	6.4E+09	5.9E+10
Di-n-Butyl Phthalate	0	--	--	2.7E+03	1.2E+04	--	--	5.5E+08	2.4E+09	--	--	2.7E+02	1.2E+03	--	--	5.5E+07	2.4E+08	--	--	5.5E+07	2.4E+08
2,4 Dinitrophenol	0	--	--	7.0E+01	1.4E+04	--	--	1.4E+07	2.8E+09	--	--	7.0E+00	1.4E+03	--	--	1.4E+06	2.8E+08	--	--	1.4E+06	2.8E+08
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	7.65E+02	--	--	2.7E+06	1.6E+08	--	--	1.3E+00	7.7E+01	--	--	2.7E+05	1.6E+07	--	--	2.7E+05	1.6E+07
2,4-Dinitrotoluene <sup>C</sup>	0	--	--	1.1E+00	9.1E+01	--	--	1.1E+00	9.1E+01	--	--	1.1E-01	9.1E+00	--	--	1.1E-01	9.1E+00	--	--	1.1E-01	9.1E+00
Dioxin (2,3,7,8- tetrachlorodibenzo-p- dioxin) (ppq)	0	--	--	1.2E-06	1.2E-06	--	--	1.2E-06	1.2E-06	--	--	1.2E-07	1.2E-07	--	--	1.2E-07	1.2E-07	--	--	1.2E-07	1.2E-07
1,2-Diphenylhydrazine <sup>C</sup>	0	--	--	4.0E-01	5.4E+00	--	--	4.0E-01	5.4E+00	--	--	4.0E-02	5.4E-01	--	--	4.0E-02	5.4E-01	--	--	4.0E-02	5.4E-01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	1.1E+02	2.4E+02	2.3E+02	2.6E+02	2.2E+07	4.9E+07	5.5E-02	1.4E-02	1.1E+01	2.4E+01	2.3E+02	6.6E+01	2.2E+06	4.9E+06	2.3E+02	6.6E+01	2.2E+06	4.9E+06
Beta-Endosulfan	0	2.2E-01	5.6E-02	1.1E+02	2.4E+02	2.3E+02	2.6E+02	2.2E+07	4.9E+07	5.5E-02	1.4E-02	1.1E+01	2.4E+01	2.3E+02	6.6E+01	2.2E+06	4.9E+06	2.3E+02	6.6E+01	2.2E+06	4.9E+06
Endosulfan Sulfate	0	--	--	1.1E+02	2.4E+02	--	--	2.2E+07	4.9E+07	--	--	1.1E+01	2.4E+01	--	--	2.2E+06	4.9E+06	--	--	2.2E+06	4.9E+06
Endrin	0	8.6E-02	3.6E-02	7.6E-01	8.1E-01	9.1E+01	1.7E+02	1.5E+05	1.6E+05	2.2E-02	9.0E-03	7.6E-02	8.1E-02	8.8E+01	4.2E+01	1.5E+04	1.6E+04	8.8E+01	4.2E+01	1.5E+04	1.6E+04
Endrin Aldehyde	0	--	--	7.6E-01	8.1E-01	--	--	1.5E+05	1.6E+05	--	--	7.6E-02	8.1E-02	--	--	1.5E+04	1.6E+04	--	--	1.5E+04	1.6E+04

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	3.1E+03	2.9E+04	--	--	6.3E+08	5.9E+09	--	--	3.1E+02	2.9E+03	--	--	6.3E+07	5.9E+08	--	--	6.3E+07	5.9E+08
Fluoranthene	0	--	--	3.0E+02	3.7E+02	--	--	6.1E+07	7.5E+07	--	--	3.0E+01	3.7E+01	--	--	6.1E+06	7.5E+06	--	--	6.1E+06	7.5E+06
Fluorene	0	--	--	1.3E+03	1.4E+04	--	--	2.6E+08	2.8E+09	--	--	1.3E+02	1.4E+03	--	--	2.6E+07	2.8E+08	--	--	2.6E+07	2.8E+08
Foaming Agents	0	--	--	5.0E+02	--	--	--	1.0E+08	--	--	--	5.0E+01	--	--	--	1.0E+07	--	--	--	1.0E+07	--
Guthion	0	--	1.0E-02	--	--	--	4.7E+01	--	--	--	2.5E-03	--	--	--	1.2E+01	--	--	--	1.2E+01	--	--
Heptachlor <sup>C</sup>	0	5.2E-01	3.8E-03	2.1E-03	2.1E-03	5.5E+02	1.8E+01	2.1E-03	2.1E-03	1.3E-01	9.5E-04	2.1E-04	2.1E-04	5.3E+02	4.5E+00	2.1E-04	2.1E-04	5.3E+02	4.5E+00	2.1E-04	2.1E-04
Heptachlor Epoxide <sup>C</sup>	0	5.2E-01	3.8E-03	1.0E-03	1.1E-03	5.5E+02	1.8E+01	1.0E-03	1.1E-03	1.3E-01	9.5E-04	1.0E-04	1.1E-04	5.3E+02	4.5E+00	1.0E-04	1.1E-04	5.3E+02	4.5E+00	1.0E-04	1.1E-04
Hexachlorobenzene <sup>C</sup>	0	--	--	7.5E-03	7.7E-03	--	--	7.5E-03	7.7E-03	--	--	7.5E-04	7.7E-04	--	--	7.5E-04	7.7E-04	--	--	7.5E-04	7.7E-04
Hexachlorobutadiene <sup>C</sup>	0	--	--	4.4E+00	5.0E+02	--	--	4.4E+00	5.0E+02	--	--	4.4E-01	5.0E+01	--	--	4.4E-01	5.0E+01	--	--	4.4E-01	5.0E+01
Hexachlorocyclohexane																					
Alpha-BHC <sup>C</sup>	0	--	--	3.9E-02	1.3E-01	--	--	3.9E-02	1.3E-01	--	--	3.9E-03	1.3E-02	--	--	3.9E-03	1.3E-02	--	--	3.9E-03	1.3E-02
Hexachlorocyclohexane																					
Beta-BHC <sup>C</sup>	0	--	--	1.4E-01	4.6E-01	--	--	1.4E-01	4.6E-01	--	--	1.4E-02	4.6E-02	--	--	1.4E-02	4.6E-02	--	--	1.4E-02	4.6E-02
Hexachlorocyclohexane																					
Gamma-BHC <sup>C</sup> (Lindane)	0	9.5E-01	--	1.9E-01	6.3E-01	1.0E+03	--	1.9E-01	6.3E-01	2.4E-01	--	1.9E-02	6.3E-02	9.8E+02	--	1.9E-02	6.3E-02	9.8E+02	--	1.9E-02	6.3E-02
Hexachlorocyclopentadiene	0	--	--	2.4E+02	1.7E+04	--	--	4.9E+07	3.5E+09	--	--	2.4E+01	1.7E+03	--	--	4.9E+06	3.5E+08	--	--	4.9E+06	3.5E+08
Hexachloroethane <sup>C</sup>	0	--	--	1.9E+01	8.9E+01	--	--	1.9E+01	8.9E+01	--	--	1.9E+00	8.9E+00	--	--	1.9E+00	8.9E+00	--	--	1.9E+00	8.9E+00
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	9.4E+03	--	--	--	5.0E-01	--	--	--	2.4E+03	--	--	--	2.4E+03	--	--
Indeno (1,2,3-cd) pyrene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	4.4E-02	4.9E-01	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02	--	--	4.4E-03	4.9E-02
Iron	0	--	--	3.0E+02	--	--	--	6.1E+07	--	--	--	3.0E+01	--	--	--	6.1E+06	--	--	--	6.1E+06	--
Isophorone <sup>C</sup>	0	--	--	3.6E+02	2.6E+04	--	--	3.6E+02	2.6E+04	--	--	3.6E+01	2.6E+03	--	--	3.6E+01	2.6E+03	--	--	3.6E+01	2.6E+03
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	1.8E+02	2.0E+01	1.5E+01	--	1.9E+05	9.5E+04	3.1E+06	--	4.5E+01	5.1E+00	1.5E+00	--	1.8E+05	2.4E+04	3.1E+05	--	1.8E+05	2.4E+04	3.1E+05	--
Malathion	0	--	1.0E-01	--	--	--	4.7E+02	--	--	--	2.5E-02	--	--	--	1.2E+02	--	--	--	1.2E+02	--	--
Manganese	0	--	--	5.0E+01	--	--	--	1.0E+07	--	--	--	5.0E+00	--	--	--	1.0E+06	--	--	--	1.0E+06	--
Mercury	0	1.4E+00	7.7E-01	5.0E-02	5.1E-02	1.5E+03	3.6E+03	1.0E+04	1.0E+04	3.5E-01	1.9E-01	5.0E-03	5.1E-03	1.4E+03	9.1E+02	1.0E+03	1.0E+03	1.4E+03	9.1E+02	1.0E+03	1.0E+03
Methyl Bromide	0	--	--	4.8E+01	4.0E+03	--	--	9.8E+06	8.1E+08	--	--	4.8E+00	4.0E+02	--	--	9.8E+05	8.1E+07	--	--	9.8E+05	8.1E+07
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	1.4E+02	2.0E+07	--	--	7.5E-03	1.0E+01	--	--	3.5E+01	2.0E+06	--	--	3.5E+01	2.0E+06	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Monochlorobenzene	0	--	--	6.8E+02	2.1E+04	--	--	1.4E+08	4.3E+09	--	--	6.8E+01	2.1E+03	--	--	1.4E+07	4.3E+08	--	--	1.4E+07	4.3E+08
Nickel	0	2.4E+02	2.7E+01	6.1E+02	4.6E+03	2.5E+05	1.3E+05	1.2E+08	9.4E+08	6.0E+01	6.6E+00	6.1E+01	4.6E+02	2.5E+05	3.1E+04	1.2E+07	9.4E+07	2.5E+05	3.1E+04	1.2E+07	9.4E+07
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	2.0E+09	--	--	--	1.0E+03	--	--	--	2.0E+08	--	--	--	2.0E+08	--
Nitrobenzene	0	--	--	1.7E+01	1.9E+03	--	--	3.5E+06	3.9E+08	--	--	1.7E+00	1.9E+02	--	--	3.5E+05	3.9E+07	--	--	3.5E+05	3.9E+07
N-Nitrosodimethylamine <sup>C</sup>	0	--	--	6.9E-03	8.1E+01	--	--	6.9E-03	8.1E+01	--	--	6.9E-04	8.1E+00	--	--	6.9E-04	8.1E+00	--	--	6.9E-04	8.1E+00
N-Nitrosodiphenylamine <sup>C</sup>	0	--	--	5.0E+01	1.6E+02	--	--	5.0E+01	1.6E+02	--	--	5.0E+00	1.6E+01	--	--	5.0E+00	1.6E+01	--	--	5.0E+00	1.6E+01
N-Nitrosodi-n-propylamine <sup>C</sup>	0	--	--	5.0E-02	1.4E+01	--	--	5.0E-02	1.4E+01	--	--	5.0E-03	1.4E+00	--	--	5.0E-03	1.4E+00	--	--	5.0E-03	1.4E+00
Parathion	0	6.5E-02	1.3E-02	--	--	6.9E+01	6.1E+01	--	--	1.6E-02	3.3E-03	--	--	6.7E+01	1.5E+01	--	--	6.7E+01	1.5E+01	--	--
PCB-1016	0	--	1.4E-02	--	--	--	6.6E+01	--	--	--	3.5E-03	--	--	--	1.7E+01	--	--	--	1.7E+01	--	--
PCB-1221	0	--	1.4E-02	--	--	--	6.6E+01	--	--	--	3.5E-03	--	--	--	1.7E+01	--	--	--	1.7E+01	--	--
PCB-1232	0	--	1.4E-02	--	--	--	6.6E+01	--	--	--	3.5E-03	--	--	--	1.7E+01	--	--	--	1.7E+01	--	--
PCB-1242	0	--	1.4E-02	--	--	--	6.6E+01	--	--	--	3.5E-03	--	--	--	1.7E+01	--	--	--	1.7E+01	--	--
PCB-1248	0	--	1.4E-02	--	--	--	6.6E+01	--	--	--	3.5E-03	--	--	--	1.7E+01	--	--	--	1.7E+01	--	--
PCB-1254	0	--	1.4E-02	--	--	--	6.6E+01	--	--	--	3.5E-03	--	--	--	1.7E+01	--	--	--	1.7E+01	--	--
PCB-1260	0	--	1.4E-02	--	--	--	6.6E+01	--	--	--	3.5E-03	--	--	--	1.7E+01	--	--	--	1.7E+01	--	--
PCB Total <sup>C</sup>	0	--	--	1.7E-03	1.7E-03	--	--	1.7E-03	1.7E-03	--	--	1.7E-04	1.7E-04	--	--	1.7E-04	1.7E-04	--	--	1.7E-04	1.7E-04

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Pentachlorophenol <sup>C</sup>	0	7.7E-03	5.9E-03	2.8E+00	8.2E+01	8.1E+00	2.8E+01	2.8E+00	8.2E+01	1.9E-03	1.5E-03	2.8E-01	8.2E+00	7.9E+00	7.0E+00	2.8E-01	8.2E+00	7.9E+00	7.0E+00	2.8E-01	8.2E+00
Phenol	0	--	--	2.1E+04	4.6E+06	--	--	4.3E+09	9.4E+11	--	--	2.1E+03	4.6E+05	--	--	4.3E+08	9.4E+10	--	--	4.3E+08	9.4E+10
Pyrene	0	--	--	9.6E+02	1.1E+04	--	--	2.0E+08	2.2E+09	--	--	9.6E+01	1.1E+03	--	--	2.0E+07	2.2E+08	--	--	2.0E+07	2.2E+08
Radionuclides (pCi/l except Beta/Photon)	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity	0	--	--	1.5E+01	1.5E+01	--	--	3.1E+06	3.1E+06	--	--	1.5E+00	1.5E+00	--	--	3.1E+05	3.1E+05	--	--	3.1E+05	3.1E+05
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	4.0E+00	--	--	8.1E+05	8.1E+05	--	--	4.0E-01	4.0E-01	--	--	8.1E+04	8.1E+04	--	--	8.1E+04	8.1E+04
Strontium-90	0	--	--	8.0E+00	8.0E+00	--	--	1.6E+06	1.6E+06	--	--	8.0E-01	8.0E-01	--	--	1.6E+05	1.6E+05	--	--	1.6E+05	1.6E+05
Tritium	0	--	--	2.0E+04	2.0E+04	--	--	4.1E+09	4.1E+09	--	--	2.0E+03	2.0E+03	--	--	4.1E+08	4.1E+08	--	--	4.1E+08	4.1E+08
Selenium	0	2.0E+01	5.0E+00	1.7E+02	1.1E+04	2.1E+04	2.4E+04	3.5E+07	2.2E+09	5.0E+00	1.3E+00	1.7E+01	1.1E+03	2.1E+04	5.9E+03	3.5E+06	2.2E+08	2.1E+04	5.9E+03	3.5E+06	2.2E+08
Silver	0	6.0E+00	--	--	--	6.3E+03	--	--	--	1.5E+00	--	--	--	6.1E+03	--	--	--	6.1E+03	--	--	--
Sulfate	0	--	--	2.5E+05	--	--	--	5.1E+10	--	--	--	2.5E+04	--	--	--	5.1E+09	--	--	--	5.1E+09	--
1,1,2,2-Tetrachloroethane <sup>C</sup>	0	--	--	1.7E+00	1.1E+02	--	--	1.7E+00	1.1E+02	--	--	1.7E-01	1.1E+01	--	--	1.7E-01	1.1E+01	--	--	1.7E-01	1.1E+01
Tetrachloroethylene <sup>C</sup>	0	--	--	8.0E+00	8.9E+01	--	--	8.0E+00	8.9E+01	--	--	8.0E-01	8.9E+00	--	--	8.0E-01	8.9E+00	--	--	8.0E-01	8.9E+00
Thallium	0	--	--	1.7E+00	6.3E+00	--	--	3.5E+05	1.3E+06	--	--	1.7E-01	6.3E-01	--	--	3.5E+04	1.3E+05	--	--	3.5E+04	1.3E+05
Toluene	0	--	--	6.8E+03	2.0E+05	--	--	1.4E+09	4.1E+10	--	--	6.8E+02	2.0E+04	--	--	1.4E+08	4.1E+09	--	--	1.4E+08	4.1E+09
Total dissolved solids	0	--	--	5.0E+05	--	--	--	1.0E+11	--	--	--	5.0E+04	--	--	--	1.0E+10	--	--	--	1.0E+10	--
Toxaphene <sup>C</sup>	0	7.3E-01	2.0E-04	7.3E-03	7.5E-03	7.7E+02	9.4E-01	7.3E-03	7.5E-03	1.8E-01	5.0E-05	7.3E-04	7.5E-04	7.5E+02	2.4E-01	7.3E-04	7.5E-04	7.5E+02	2.4E-01	7.3E-04	7.5E-04
Tributyltin	0	4.6E-01	6.3E-02	--	--	4.9E+02	3.0E+02	--	--	1.2E-01	1.6E-02	--	--	4.7E+02	7.4E+01	--	--	4.7E+02	7.4E+01	--	--
1,2,4-Trichlorobenzene	0	--	--	2.6E+02	9.4E+02	--	--	5.3E+07	1.9E+08	--	--	2.6E+01	9.4E+01	--	--	5.3E+06	1.9E+07	--	--	5.3E+06	1.9E+07
1,1,2-Trichloroethane <sup>C</sup>	0	--	--	6.0E+00	4.2E+02	--	--	6.0E+00	4.2E+02	--	--	6.0E-01	4.2E+01	--	--	6.0E-01	4.2E+01	--	--	6.0E-01	4.2E+01
Trichloroethylene <sup>C</sup>	0	--	--	2.7E+01	8.1E+02	--	--	2.7E+01	8.1E+02	--	--	2.7E+00	8.1E+01	--	--	2.7E+00	8.1E+01	--	--	2.7E+00	8.1E+01
2,4,6-Trichlorophenol <sup>C</sup>	0	--	--	2.1E+01	6.5E+01	--	--	2.1E+01	6.5E+01	--	--	2.1E+00	6.5E+00	--	--	2.1E+00	6.5E+00	--	--	2.1E+00	6.5E+00
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	1.0E+07	--	--	--	5.0E+00	--	--	--	1.0E+06	--	--	--	1.0E+06	--
Vinyl Chloride <sup>C</sup>	0	--	--	2.3E-01	6.1E+01	--	--	2.3E-01	6.1E+01	--	--	2.3E-02	6.1E+00	--	--	2.3E-02	6.1E+00	--	--	2.3E-02	6.1E+00
Zinc	0	1.5E+02	1.5E+02	9.1E+03	6.9E+04	1.6E+05	7.3E+05	1.9E+09	1.4E+10	3.8E+01	3.9E+01	9.1E+02	6.9E+03	1.6E+05	1.8E+05	1.9E+08	1.4E+09	1.6E+05	1.8E+05	1.9E+08	1.4E+09

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic  
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

Metal	Target Value (SSTV)
Antimony	2.8E+05
Arsenic	1.1E+05
Barium	4.1E+07
Cadmium	1.0E+03
Chromium III	6.8E+04
Chromium VI	6.6E+03
Copper	7.4E+03
Iron	6.1E+06
Lead	1.4E+04
Manganese	1.0E+06
Mercury	5.4E+02
Nickel	1.9E+04
Selenium	3.5E+03
Silver	2.4E+03
Zinc	6.3E+04

Note: do not use QL's lower than the minimum QL's provided in agency guidance

9/25/2008 1:33:15 PM

Facility = Elysian Heights STP

Chemical = Ammonia

Chronic averaging period = 30

WLAa = 8600

WLAc = 1500

Q.L. = 0.2

# samples/mo. = 12

# samples/wk. = 3

#### Summary of Statistics:

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# observations = 1

Expected Value = 9

Variance = 29.16

C.V. = 0.6

97th percentile daily values = 21.9007

97th percentile 4 day average = 14.9741

97th percentile 30 day average = 10.8544

# < Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

9/25/2008 1:26:10 PM

Facility = Elysian Heights STP

Chemical = Chlorine

Chronic averaging period = 4

WLAa = 4

WLAc = 4

Q.L. = 0.1

# samples/mo. = 28

# samples/wk. = 7

#### Summary of Statistics:

---

# observations = 1

Expected Value = 20

Variance = 144

C.V. = 0.6

97th percentile daily values = 48.6683

97th percentile 4 day average = 33.2758

97th percentile 30 day average = 24.1210

# < Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 4

Average Weekly limit = 2.44282882700811

Average Monthly Limit = 1.99437267042921

The data are:

# Public Notice – Environmental Permit

**PURPOSE OF NOTICE:** To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Loudoun County Virginia.

**PUBLIC COMMENT PERIOD:** November 6, 2008 to 5:00 p.m. on December 8, 2008

**PERMIT NAME:** Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

**APPLICANT NAME, ADDRESS AND PERMIT NUMBER:** Loudoun County Sanitation Authority  
P.O. Box 4000, Ashburn, VA 20146  
VA0092380

**NAME AND ADDRESS OF FACILITY:** Elysian Heights Sewage Treatment Plant  
43254 Heavenly Circle, Leesburg, VA 20176

**PROJECT DESCRIPTION:** Loudoun County Sanitation Authority has applied for a reissuance of a permit for the public Elysian Heights STP. The applicant proposes to release treated sewage wastewaters from residential areas at a rate of 0.12 Million Gallons per Day into a water body. Sludge from the treatment process will be transported to the Broad Run Water Reclamation Facility (VA0091383) for final treatment and disposal. The facility proposes to release the treated sewage in the Potomac River in Frederick County, Maryland in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, BOD, TSS, DO, Ammonia, *E. coli* and Chlorine, Total Nitrogen and Total Phosphorus.

**HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING:** DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.

**CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:** The public may review the documents at the DEQ-Northern Regional Office by appointment.

Name: Douglas Frasier

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3873 E-mail: [ddfrasier@deq.virginia.gov](mailto:ddfrasier@deq.virginia.gov) Fax: (703) 583-3821

Revised 2/2003

**State “Transmittal Checklist” to Assist in Targeting  
Municipal and Industrial Individual NPDES Draft Permits for Review**

**Part I. State Draft Permit Submission Checklist**

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Elysian Heights Sewage Treatment Plant
NPDES Permit Number:	VA0092380
Permit Writer Name:	Douglas Frasier
Date:	7 October 2008

Major [ ]

Minor [X]

Industrial [ ]

Municipal [X]

**I.A. Draft Permit Package Submittal Includes:**

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?			X
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

**I.B. Permit/Facility Characteristics**

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet <b>or</b> permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet <b>or</b> permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?		X	
a. Has a TMDL been developed and approved by EPA for the impaired water?			X
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

<b>I.B. Permit/Facility Characteristics – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?	X		
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?	X		
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

## Part II. NPDES Draft Permit Checklist

### Region III NPDES Permit Quality Checklist – for POTWs (To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?			X
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		

<b>II.D. Water Quality-Based Effluent Limits – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

<b>II.E. Monitoring and Reporting Requirements</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?		X	
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?			X

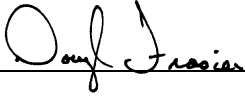
<b>II.F. Special Conditions</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit include appropriate biosolids use/disposal requirements?			X
2. Does the permit include appropriate storm water program requirements?			X

<b>II.F. Special Conditions – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?			X
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?			X
a. Does the permit require implementation of the “Nine Minimum Controls”?			X
b. Does the permit require development and implementation of a “Long Term Control Plan”?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions	Yes	No	N/A
1. Does the <b>permit</b> contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		
<b>List of Standard Conditions – 40 CFR 122.41</b>			
Duty to comply	Property rights	Reporting Requirements	
Duty to reapply	Duty to provide information	Planned change	
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance	
not a defense	Monitoring and records	Transfers	
Duty to mitigate	Signatory requirement	Monitoring reports	
Proper O & M	Bypass	Compliance schedules	
Permit actions	Upset	24-Hour reporting	
		Other non-compliance	
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

**Part III. Signature Page**

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Douglas Frasier</u>
Title	<u>Environmental Specialist II</u>
Signature	<u></u>
Date	<u>7 October 2008</u>